

MoOx Sputtering Targets

PS – PRODUCTSPECIFICATION

1 / 4

Information about the content

Responsible area:	Plansee SE	Prepared/Updated:	See SAP-DMS
		Released:	See SAP-DMS
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This document is subject to electronic version control – confirm revision status before using.

This specification covers MoOx sputtering targets.

1 Dimensions and tolerances

The MoOx sputtering targets are produced according to Plansee SE drawings with the dimensions, tolerances and surface finish specified in these construction drawings.

1.1 Bonding position

The target position on the backing plate is defined as follows:

- Long direction = actual measurement $\pm 0,5$ mm from the backing plate end where the water-cooling ports are located. Actual measurement is defined as distance from new backing plate end where the water-cooling ports are located to the edge of the target.
- Short direction = actual measurement $\pm 0,5$ mm from both backing plate ends. Actual measurement is defined as distance from the lateral end of the backing plate to the lateral edge of the target.

1.2 Warp

The warp after bonding will be less than 1,0 mm on plus side and less than 1,0 mm on minus side for targets **smaller than 800 mm** backing plate length.

The warp after bonding will be less than 1,0 mm on plus side and less than 2,0 mm on minus side for **800 to 1600 mm** backing plate length target.

The warp after bonding will be less than 1,5 mm on plus side and less than 3,0 mm on minus side for **1600 to 3000 mm** backing plate length target.

1.3 Target height

Target height from backing plate surface will be defined by H in the following equation
(Target thickness) < H < (Target thickness + 1,5 mm)

2 Physical and mechanical product properties

Guaranteed Density: $\geq 3,9$ g/cm³

2.1 Surface condition

Appearance: According to the drawing the specified areas of the target and / or the backing plate are blasted.

The targets will have no cracks, abrasions and discoloration. Inhomogeneity and discoloration of the surface can occur and are related to the different phase alignment and the resulting interference.

3 Chemical composition

Main and minor components	Plansee MoOx	EU-Directive
	content [%]	RoHS ^{a)}
Mo	68,5 ± 2,0 wt. %	-
O	balance	-
Purity	Min. 99,9 %	-
Impurities	Max. values [µg/g] ^{b)}	Max. values [µg/g] ^{b)}
	Guaranteed	
C	100	-
Fe	30	-
Cd	5	100
Hg ^{c)}	1	1000
Pb	5	1000

a) EU-directives 2015/863/EU, 2011/65/EU and 2000/53/EC

b) µg/g ≙ ppm (mass fraction)

c) Initial value / first up

Remarks: The specified physical and chemical characteristics are disclosed not regarding measurement accuracy.

4 Packaging, labelling, storage and certification

4.1 Packaging, labelling and storage

Standard individual packing: The target is vacuum-sealed in a vinyl pack, which is put into a transportation box.

Each package will be provided with a label with the following information:

producer's name:	Plansee SE
product description incl. dimension:	
part number:	
order number:	
machining batch no. and serial no.:	
weight:	kg

The targets must be kept in a dry place and protected from mechanical damage. The shelf time for the vacuum-packed targets shall be 6 months from the shipping date under the following storage conditions ^{a)}. However, the customer is recommended to use the targets within 3 months.

a) **Storage conditions:** temperature: 22 ± 4 °C; relative humidity of the air: ≤ 50 %; atmospheric pressure: approx. 1000 mbar.

4.2 Certification

All targets manufactured by Plansee SE will be certified including the following information:

4.2.1 Identification

The order number, target batch number and target number are indicated.

4.2.2 Chemical composition

Inspection certificate 2.2 according to EN 10204:2004 (chemical elements see section 3).

4.2.3 Dimensions

Actual values of length, width and thickness of the sputtering target.

4.2.4 Weight

Actual measured value.

5 Order instructions

Please quote following information when ordering:

- dimensions
- quality (the number of this specification **must** be mentioned)
- quantity (number of targets)
- bonded version (yes/no)
- *for special packing:* specification of packaging

For further information on our delivery possibilities, please consider our <http://www.plansee.com>

6 Referenced standards

The standards applied for the test methods are listed in the Plansee standard InfoBase and are made available upon request.

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PS – PRODUCTSPECIFICATION

4 / 4

Changes to last version

Replacement for	Changes to last version
-	▪ new specification

Appendix 1

General product information for MoOx Targets

The following physical data are for reference only and no guarantee values.

physical property		unit	value
bending strength	at 20°C	MPa	25
linear thermal expansion	at 20°C-200°C	1/K	5,0 x 10 ⁻⁶
electrical conductivity	at 20°C	S/cm	120
thermal conductivity	at 20°C	W/mK	3,5
optical appearance			dark